The Province of Alberta

PETROLEUM AND NATURAL GAS CONSERVATION BOARD

IN THE MATTER OF THE GAS RESOURCES PRESERVATION ACT

AND IN THE MATTER of a Joint Hearing to determine various questions relating to the proposed Export of Natural Gas from the Province of Alberta.

I. N. McKinnon Esq., Chairman

D. P. Goodall Esq.

Dr. G. W. Govier

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W I T N E S S E S

E X H I B I T S

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20 November 1951.

MR. NOLAN: Mr. Chairman, I have a submission entitled "Estimate of Annual Revenues and Expenses", which was fully distributed the week before last, and that could be marked as an exhibit, sir.

THE CHAIRMAN: Exhibit 66.

SUBMISSION, "ESTIMATE OF ANNUAL REVENUES AND EXPENSES" PUT IN AND MARKED EXHIBIT 66.

A. FAISON DIXON, recalled, already sworn, examined by Mr. Nolan, testified as follows:

Q I think, Mr. Dixon, there is one thing I would like to ask you arising out of the design of the gathering system. I observe that you propose to take gas from certain fields in the southeastern portion of this Province and from Pincher Creek. Have you any plan in view for the expansion of that gathering system?

A Of course, this gathering system as shown here is just a bare beginning in our minds of what it would be in future. If the gas reserves of Alberta prove to be what everybody seems to expect there will be vast quantities of gas seeking a market in Alberta. If we tried to gaze into the future to see what it will be, there is one great possibility, and it is the concensus of practically all of the geological opinion, that the Foothill region will produce the major part of the gas of the future. It does not seem possible that Jumping Pound, Turner Valley and Pincher

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Creek are the only fields that will ever be discovered in that vast region. It seems highly probable that if other fields are discovered in the Foothills region that a line starting in the general neighbourhood of Pincher Creek and going north through the Foothills would be the logical way to get the gas from the western part of the Province. A more recent development has been in the extreme eastern side and it is possible, of course, that that will develop into very large reserves. A line might even be needed going in that direction. But all this can be better determined in the future than it can now. We have enough gas for the immediate needs of the amount of gas that we are requesting that the Board permit us to export from the fields that we hope to attach.

Q Well, Mr. Dixon, if you look at Exhibit 66. Have you got it before you? That is the estimate of the annual revenues and expenses exhibit. It is short, again, Mr. Chairman, so far as the narrative is concerned, so with your permission we will read it.

A Presented herein is an estimate of revenues and expenses, together with supporting schedules, for the fifth year of operation and a summary of unit costs for gathering and transmission at various levels of operation.

It is estimated that the pipe line system, together with necessary appurtenances, will cost approximately $92,000,000, including $1,500,000 for working capital. This reduction in cost from those estimates submitted previously is due to modification of the Grid System.

Revenues have been calculated on the basis of

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sales volumes as presented in previous exhibits with a Monthly Demand Charge of $3.05 per Mcf and a Commodity Charge of 18 cents per Mcf. Accordingly, the average sales price is 31.58 cents per Mcf.

I would now like to turn to page 4 of Schedule No. 1. Everything here put through the first four columns or five columns, counting the company as a column, is taken directly from exhibits which have already been put in and testified to. Exhibit No. 5 in the June 1950 Hearing was a general summary of the other exhibits and included the small towns and industrial sales outside of the limits of the distributing companies. The B.C. Electric mainland system was testified to in Exhibit 6; the direct industrial in B.C. was Exhibit 10; Spokane was testified to in Exhibit 9; Wenatchee in Exhibit 13; Bellingham in Exhibit 12; Seattle in Exhibit 7; Everett, Tacoma and Olympia in Exhibit 11, also Centralia and Chehalis, and the Longview and Camas in Exhibit 5; the Portland Gas & Coke Company Exhibit 8. We now have signed contracts with the Seattle and Portland companies. In these contracts the price is $3.03 for demand and 18 cents for the commodity charge. We have made these calculations,which were made before this contract was finally determined, on the basis of $3.05 demand charge, but our actual contracts are $3.03 for demand charge which is a difference of less than 1/10 of a cent in the cost of the gas.

I would like to explain the way this demand commodity charge works. We expect to have exactly the same charge for gas for every company that we sell to

excepting that the Canadian companies will pay for their gas in Canadian dollars and the American companies will pay for their gas in U.S. dollars.

You will see in the B.C. Electric main line system a load factor of 58.67 per cent. That was the load factor testified to in the June 1950 Hearing. They now believe, I understand, that they can cut peaks by manufacturing some gas to put in on the days of high demand and expect to get their load factor to approximately 70 per cent, which will bring their price down to about 32-1/3 cents.

Q That is the figure that Mr. Grauer mentioned yesterday when he was answering counsel?

A Yes, sir.

Q As you have just pointed out, it is on the basis of a load factor of 58.67 per cent that you have an average price per Mcf of 35.09 cents?

A Yes, sir. You can see by the average prices charged how they vary and direct industrial, with a 96 per cent load factor, would pay a price of 28.4 cents, while at Longview, which is nothing but house-heating, practically, and domestic use, would be 51 cents. It is a good thing for the pipeline company to charge less for the gas and have a low load factor. That leaves more space in the line for other customers.

Now, it has been mentioned that British Columbia might not be sufficiently protected in their being near the end of the line. I would like to read Section 32 from the contract in the Portland Gas & Coke Company, and exactly the same phraseology is used in the contract with Seattle,

and we will have this same clause in every contract we sign in the United States.

MR. NOLAN: Mr. Chairman, in the directive of the Board, as I pointed out yesterday, we were asked to produce contracts. It is quite clear from the language used by the Board that the contracts which you had in mind were producers' contracts because there are references to such things as field prices. As this evidence has developed, you will have observed, sir, that on several occasions there have been references made to contracts between the Northwest Company and the Seattle Gas Company and the Portland Gas & Coke Company. I think the first time they were mentioned was by Mr. Grauer, and they have been mentioned by Mr. Dixon who now wants to inform the Board as to a paragraph contained in one of those contracts, and while we were not asked to do so, perhaps it would make the record more complete, sir, if they went in as exhibits, although the Board did not ask us to bring them forward.

THE CHAIRMAN: I think they should be filed, Mr. Nolan.

MR. NOLAN: I think we should distribute them now, sir. We have not a great number of them but we will make them go as far as we can.

(Go to page 1970)

MR.NOLAN: Now, sir, will you please give these contracts exhibit numbers?

THE CHAIRMAN: Yes.

MR.NOLAN: May we have the Portland Gas & Coke Company contract first, sir?

THE CHAIRMAN: Yes. Exhibit Number 67.

CONTRACT DATED NOVEMBER 3rd, 1951, BETWEEN NORTHWEST NATURAL GAS CO. AND PORTLAND GAS & COKE CO. MARKED EXHIBIT 67.

MR.NOLAN: And the contract of the Seattle Gas Company, sir?

THE CHAIRMAN: Exhibit 68.

CONTRACT DATED NOVEMBER 3rd, 1951, BETWEEN NORTHWEST NATURAL GAS CO. AND SEATTLE GAS COMPANY MARKED EXHIBIT 68.

Q MR.NOLAN: Mr. Dixon, you were going to draw the attention of the Board to a clause in each contract. Have you got the copy in front of you?

A This is the Portland contract.

Q That is Exhibit 67. And the number of the clause you are going to read is what?

A Section 32, entitled "Priority in Service".

"Seller expects and has consented to have conditions placed upon its right to export gas from Canada, with which Buyer is familiar. Seller's proposed system will return certain of the gas exported from Canada to Canada for delivery to users in British Columbia and expects, and has consented to have as one of the conditions of its right

"to export gas, that the users in British Columbia shall have priority over users in the United States, and the parties therefore agree that Canadian users connected to Seller's system shall have priority over Buyer's requirements."

Q And did I understand you to say that there is a similar section in Exhibit 68?

A Yes, sir.

Q Being the contract with the Seattle Gas Company?

A Yes, sir.

Q And a similar clause will be in all other contracts.

Q All right, Mr. Dixon?

A You will note that in the exhibit at the bottom of page 4. . .

Q You have gone back to Schedule 1, page 4, now,haven't you?

A Yes, sir.

Q And you are looking at the notes at the bottom?

A Yes, sir. You will note that we have added a billion cubic feet of additional dry industrial sales. That includes some developments that came along in Spokane since the testimony of June, 1950. I believe the rest of this schedule is self-explanatory.

Q And could be summed up by saying, Mr. Dixon, that so far as your relationship with the distributors is concerned, that the billing basis is the same for all companies?

A Yes, sir.

Q There is a difference in the average price paid per Mcf, dependent upon the load factor?

A Yes, and that is under the control of the buyer of the gas, to a certain extent at least.

Q Now, you stopped reading on page 1 of this exhibit, Number 66, at, I think, the end of the third paragraph.

A Oh, I would like first to read a telegram from the other distributor in Washington. There is one I have here from Mr. Allen Peyser, President of the Washington Gas and Electric Company.

Q Perhaps you would read that, Mr. Dixon?

MR.NOLAN: If that could be given a number, Mr.Chairman, if it meets with your approval. We, of course, haven't any copies of this for distribution. It is simply for the attention of the Board. It would be Exhibit 69, I think, sir.

THE CHAIRMAN: Exhibit Number 69.

MR.NOLAN: Would you give it to the Court Reporter to mark as an exhibit, Mr. Dixon?

TELEGRAM FROM WASHINGTON GAS AND
ELECTRIC COMPANY TO NORTHWEST
NATURAL GAS MARKED EXHIBIT 69.

Q MR.NOLAN: Now, will you please read it?

A "The Washington Gas and Electric Company will subject to approval of its Board of Directors enter into a contract with Northwest Natural Gas similar to those contracts of November 3rd, 1951, executed by Seattle Gas Company and Portland Gas & Coke. Quantities and details are to be as agreed." Signed by Allen Peyser, President, Washington Gas and Electric Company.

We also have a letter from two other

companies. One is from the Bellingham Gas Company.

MR.NOLAN: May we have a number for that, Mr. Chairman? I think that will be Number 70.

Q That is the Bellingham letter?

A Yes, Bellingham Gas Company.

THE CHAIRMAN: Exhibit Number 70.

LETTER DATED NOVEMBER 19th, 1951, BELLINGHAM GAS COMPANY TO NORTHWEST NATURAL GAS MARKED EXHIBIT 70.

Q MR.NOLAN: And the other one is from?

A Wenatchee Gas Company.

Q The Wenatchee Gas Company?

A Yes.

MR.NOLAN: May we have a number for that, sir?

THE CHAIRMAN: Exhibit 71.

LETTER DATED NOVEMBER 19th, 1951, WENATCHEE GAS COMPANY TO NORTHWEST NATURAL GAS COMPANY MARKED EXHIBIT 71.

Q MR.NOLAN: Exhibit 70 and Exhibit 71 are in identical terms?

A Yes, sir, they are an identical letter.

Q So that if you will just read one of those, please?

A "You have asked us for a letter of intent and have shown us copies of the following:" . . .

Q Who is this from?

A Bellingham Gas Company, signed by Stewart Matthews, President.

Q Ahd addressed to?

A Northwest Natural Gas Company.

Q "Dear Sirs". . .

A "You have asked us for a letter of intent and have shown us copies of the following:

(a) Letter dated November 3, 1951, from Portland Gas & Coke Company

(b) Agreement dated November 3, 1951, between you and Seattle Gas Company

You have also furnished us with copies of the Agreement between you and Canadian Gulf Oil Company. It is our understanding that you have now negotiated similar contracts, but for a lesser volume of gas, with The California Standard Company and Britalta Petroleums Limited and Deep Rock Oil Corporation.

We shall be prepared to enter into a contract with you for the sale and purchase of Alberta natural gas to be distributed by us in the Bellingham, Washington, area. It is understood that the conditions and price are to be similar to those stated in the Portland and Seattle contracts, with the exception of volumes which will supplied later.

Very truly yours,

BELLINGHAM GAS COMPANY "

signed "Stewart Matthews, President".

Q I was just going to bring one matter to your attention, Mr. Dixon?

A Yes.

Q It says here,

"It is our understanding that you have now negotiated similar contracts, but for a lesser volume of gas,

"with the California Standard Company. . ." ?

A That is correct.

Q That is in the letter?

A Yes.

Q ". . . and Britalta Petroleums Limited and Deep Rock Oil Corporation."?

A Yes.

Q We have always referred to the company with whom we were dealing as the Britalta Company. Is it not a fact that the leases in the vicinity of Many Islands are owned and operated jointly by the Britalta Company and by the Deep Rock Oil Corporation?

A Yes, they are partners in the leases.

Q So that it is not a contract with Deep Rock and with Britalta, it is not two different contracts?

A No, it is a single contract, signed by both. We hope to be able to distribute that contract before the end of the week.

Q Now, if you will just go and read paragraph 4 on page 1 of Exhibit 66?

A Yes, sir. The Company has contracted to purchase gas (cleaned and dehydrated and at a pressure of 750 p.s.i.a.) at 10-3/4 cents per Mcf for the first three years of operation with an annual increase the'eafter of 1/4 cent per Mcf.

Personnel will total approximately 313 persons, of which 214 will be engaged in operation and maintenance duties and 99 in the administrative and general functions. In arriving at annual salary and wage expense, rates were used to take into account the fact that skilled personnel are now in great demand.

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Other expense items are: Depreciation at a composite rate of 3½% on gross plant; general taxes, which include property, privilege and miscellaneous taxes; and corporate income taxes at 52%. It will be noted that the present rates are: Canada 45.6%; Provincial 5%; and United States 52%.

It is expected that the initial capitalization will be:

4-1/4% First Mortgage Bonds	$69,000,000	75%
Equity Securities	23,000,000	25%
	$92,000,000	100%

The net operating income of $5,182,000, which will be, by the way, in the fifth year of operation, is believed to be a reasonable return on the invested capital.

Q Now, the next page is a summary of the estimated capital items, revenue and expenses. Perhaps you will give a few words of explanation about that page, and how it is correlated with the schedule?

A I will go through this, and I would like to make a few remarks on this page. The gross plant is $90,000,000.00, $90,500,000.00. If we turn to page 7, that is broken down between the Northwest Natural Gas Company, the Alberta Natural Gas Company, and the Alberta Natural Gas Grid Limited. The total is $9,500,000.00.

Q Is $90,500,000.00?

A Yes, $90,500,000.00.

Q Yes?

A The estimated base construction cost of the Grid or gathering

system, has been already presented in the previous exhibit, and is $12,907,000.00. At our Hearing before this Board in June, 1950, we presented estimated construction costs for the proposed transmission system. These costs were broken down between lines in Canada, the Alberta Natural Gas Company, and lines in the United States, the Northwest Natural Gas Company. It will be noted that there is a difference of $297,000.00 in the base construction costs of the Alberta Natural Gas Company in Schedule 4 of this exhibit, and those previously submitted, and $1,200,000.00 for Northwest between Schedule 4 and those previously submitted. The total difference between these estimates is less than 2%. Mr. Goodbody has informed me of revisions and corrections that caused those differences in his estimate. These are, coating mate ial had advanced in price since his estimate, and the estimated cost to the line in Canada should be increased by $125,000.00 and the United States section by $375,000.00. The cost of the Columbia River crossing, north of Wenatchee,has increased $200,000.00, due to increased costs of material. New information regarding freight rates has raised these amounts. New highway construction in Washington has added additional highway crossings. Arithmetical errors in the original calculations have been corrected. No change has been made in the route previously presented.

All of these costs have been testified to in great length by Mr.Goodbody, and others, and I think the rest of the schedule 4 on page 7 is self-explanatory.

On page 8 we have the estimates of annual general taxes. We have taken in this case 2% in the

United States and 1% in Canada. The privilege tax is taken at one-half of 1% of the operating revenue in the State of Washington.

Schedule 6 shows the method of calculating income tax, assuming a 75% bond at the start of operations.

Page 10 shows the estimate of unit costs for transmission and gathering, which are some figures asked for by the Board, and I think are self-explanatory.

Q Mr. Dixon, you did not refer the Board to the items contained in Schedules 1, 2, 3 and 4. You did mention taxes, income taxes, this last schedule being Number 10?

A Oh, pardon me.

Q The gas sales are set out, are they not, in Schedule 1?

A Schedule 1, the gas sales which I have already spoken to.

Q Maintenance and Operation is Schedule 2?

A In Schedule 2 we have made our estimate of the annual operation and maintenance expense. We have done this by building up and trying to make estimates of the number of employees, their salaries, and the various other items that go into the cost of operation and maintenance. After doing that we then made comparisons with other lines. We think it is a much safer process to build up and then compare in places, just making a bare comparison with other companies that have been operating, because sometimes those comparisons are not warranted, but it is certainly a good thing after you have made your estimate to then make comparisons, and if they are different, to see wherein the difference lies.

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There are seven stations on the line, 14 employees at each, and I would like to bring out the fact that if there is a small amount of gas going through the line, the costs remain almost constant. You must have your full crew there. I have seen that in operations where even a compressor station is shut down, but you must keep your crew there, because when you need it you have to get it going, and excepting such items as fuel and lubricants, we consider the cost as constant on all volumes of gas. Now, on page 6. . .

Q Schedule 3?

A Yes, we have the estimate of annual administrative and general expenses.

(Go to page 1980)

A. Faison Dixon,
Dir. Ex. by Mr. Nolan.

A This, in turn, was built up in trying to make an estimate and comparison with other companies as well as weighing the peculiar position here in what these expenses would be. By the way, these are all over-all expenses, including gathering up to the point of delivery of the gas. On page 10, as I said, we have the unit costs of the transmission and gathering worked out, and on page 2 we have the estimated cost of transmission and gathering at various levels of operation. This was for the fifth year of operation.

Q Well, now, is there anything else you would like to draw to the Board's attention, arising out of what is contained in exhibit number 66?

A Yes, I would like to make a few remarks.

Q Well, perhaps I might ask you one or two questions, Mr. Dixon, to elicit what you would like to say to the Board. What have you to say as to the proven reserves in this Province?

A The evidence has demonstrated that there are now sufficient proven reserves in this Province to meet all of Alberta's requirements for 30 years and that there is now a surplus to permit the export of 80 billion cubic feet annually for 25 years.

Q Have you anything to say about the trend of discoveries?

A We have also shown that the trend of discoveries is such that the reserves are increasing far in excess of the combined requirements of the Province and our proposed pipe line. Other applicants have demonstrated these general facts in scholarly presentations.

Q Now, would you say a word in conclusion about the fields from which you expect to export gas?

A. Faison Dixon,
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A We request to export gas from Pincher Creek, Many Islands Lake and Princess, which we believe can fulfil the requirements of our application. Contracts covering these fields have been made by Canadian Gulf Oil Company, the California Standard Company, the Britalta Petroleums Limited and Deep Rock Oil Corporation, offering definite volumes of gas at definite prices. Our project is to export a limited amount of gas from definite fields under conditions of formal purchase contracts through a described gathering system, a main transmission line to definite markets and at fixed contract prices.

Q Now, what do you consider to be the effect of your project on Alberta in general and on the natural gas situation in particular?

A There are several things to be said on that. In the first place I would like to discuss the effect of taking gas from the Pincher Creek field. Based on deliveries of 150 million cubic feet of natural gas per day from Pincher Creek, and taking it as the fourth year of production, the quantity and unit prices are as follows: Natural gas, 54,750 million cubic feet at 11 cents per thousand cubic feet totals $6,022,000.00; the distillate would be 2 million barrels at $3.28 per barrel or $6,560,000.00; the butane available would be 30,000 barrels . . .

Q No, no, Mr. Dixon.

A 300,000 barrels at $1.57 per barrel or $472,500.00; the propane would be 372,000 barrels at $1.68 per barrel, or $624,960.00; the natural gasoline would be 286,000 barrels at $2.52 per barrel, or $720,720.00; the sulphur that would be produced is 216,000 tons at $22.00 per ton equals

$4,752,000.00. Now, this gives us a total of the products for one year from Pincher Creek, $19,152,180.00.

Q Mr. Dixon, could you give me the percentage disclosed by the revenue from natural gas as opposed to the total revenue to be derived from the field?

A Yes, sir. In the natural gasoline it would be a total revenue to be derived . . .

Q Natural gas?

A Well, the value of the production from the natural gas in this field, based on the above value, represents less than one-third of the total value of the products to be derived from this field. I will give you the exact percentages here. It might be of interest.

Q All right, for natural gas what is the percentage of total?

A 31.5%.

Q Distillate?

A 34.3%.

Q Butane and propane and natural gasoline?

A 9.5%.

Q Sulphur?

A 24.7%.

Q Yes?

A Now, I would like to make some further remarks on this. Sulphur is now, as everybody knows, in very short demand. In British Columbia it is in extremely short demand. The paper mills are having difficulty in getting sulphur, and the paper and pulp mills are one of the great industries of British Columbia. The production of this sulphur, which is far more than British Columbia would need, would be a

great help to British Columbia. As you will note, natural gas is less than a third of the total value of the products. The distillate, butane, propane and natural gasoline together equal about three million barrels. Now, that is the production of no minor oil field. The butane and propane are hard to ship. Butane and propane are the basis of many petrochemical industries. It is only in rather isolated cases that natural gas, the methane in natural gas, forms the basis of a chemical industry. The butane is used in the making of artificial rubber, and here is the chance for the southern part of Alberta to acquire industries comparable to those now centering around Edmonton. It will add greatly to the jumbled resources of the Province to have those supplies of raw material which will be in the southern part of the Province. The total cost, as I have been informed by the Gulf, of their operations here, including the sulphur plant, the gasoline absorption plant, the cleaning plant and all of those will be more than $40,000,000.00. About half of that will be for drilling wells and the other $20,000,000.00 in putting up their plants. Now, that in itself is a major industry. That, combined with the industries that can come, joined to the other projects that can be used in the petrochemical industry, I think will be of a great benefit to the Province.

Q Mr. Dixon, I do not want to interrupt you but you said that sulphur was in short demand?

A Supply, pardon me.

Q Now, perhaps just before we close you might tell the Board what the effect of your project will be on the centres of

Edmonton and Calgary, which are the two main centres of gas consumption in this Province?

A Well, this abbreviated preliminary gathering system, which is all we require at the present time, along with the production from Pincher Creek, will have no effect excepting on Edmonton. We are not planning any immediate construction of a line to tap the fields there. Edmonton is supplied abundantly with gas already connected. At least part of the time a large amount of gas is blowing to the air from Leduc and not being utilized at all. There are untouched reserves in the immediate vicinity of Edmonton and we cannot see that this will have any effect at all one way or another upon the situation in Edmonton.

In the case of Calgary, we are not now planning to take any gas from Jumping Pound. Our contract that we had with that has now been suspended. The Olds and McKidd wells which may develop into important fields are not being thought of as of the present. I understand that those will be used possibly for to augment the supply in Calgary. Our line crosses the 16-inch line from Bow Island to Calgary. As we are covering a very considerable part of the territory of Southern Alberta by this projected line that will make available, if it ever should be needed, gas from more distant fields which could be transported through our line at a much cheaper unit rate than it could possibly be done in taking the small volumes comparatively that would be needed by the City of Calgary to help increase their supply. I think it will be a help to Calgary in the ultimate market, the ultimate supply, in place of any hindrance. The

two fields, or the fields that we expect to be connected with, are so far distant that there seems no likelihood that they will ever be needed by the City of Calgary. At least, it would be an extremely long time they would have to stand idle, and we cannot see that our project would have any deleterious effect on the gas supply of the main centres of consumption in the Province.

Q Well, now, your principal source of supply is the Pincher Creek field. What have you to say about the availability of this source of supply for the local utility companies?

A Everybody admits that the Pincher Creek field is not one that is suitable to attach to a local market. That has been testified to extensively and I believe has been perfectly well demonstrated.

Q And how will your project affect the territory along between the cities of Calgary and Edmonton?

A It will not affect them at all. That area, apparently by the wish of the two companies, can be reserved for their use and we are not affecting their logical development.

Q Well, of course, conditions may change, Mr. Dixon, as new fields are discovered?

A That is one thing that is certain, that conditions will change, but what the change will be we do not know; but in several years' time, when we would be hoping to get more gas to bring to the market and bring in another application to the Board, why then the future events and the wishes of the Board will dictate what should then be done.

Q Is there anything you would like to add, Mr. Dixon, to what

you have already said?

A No, I believe that completes it.

Q Thank you. That is all, Mr. Chairman.

THE CHAIRMAN: Does anyone wish to question Mr. Dixon?

CROSS-EXAMINATION BY MR. McDONALD:

Q Yes, Mr. Chairman, if I might be permitted to deal with Mr. Dixon's evidence. It just occurred to me, Mr. Dixon, that you outlined in some detail benefits accruing from the development of the Pincher Creek field. Now, on the assumption that that field was developed to equal capacity and the product transported to another market somewhere east of Alberta, the same benefits would accrue as the sale of that gas in the Pacific Northwest market?

A If it were sold at the same price and under the same conditions.

Q And the Canadian Gulf Company would derive the same benefits as it would under your contract?

A I believe that is evident.

Q So that your remarks apply equally whichever way the market should go?

A All the conditions of sale being the same.

Q Now, there is only one thing that occurs to me. The reason it occurs is it is a personal matter. Can you tell me where butanes are sold in this Province at $1.57 a barrel?

A I do not think they are sold at any such price as that, but you could probably buy a great deal of it if you are able to take it at a less price than that. I believe some of it is being burned now in the boilers at the plant.

Q And the present price to the Valley producers is 40 cents a barrel?

A I did not know they were getting anything for it. I thought they were burning it under the boilers.

Q Let us turn, then, to your exhibit, Mr. Dixon, gathering cost exhibit. I think it is Design and Estimated Cost of Gathering, exhibit 65. As I understand, then, exhibit 65, you have set up the estimated consumption cost of the Alberta Natural Gas Grid Limited and the calculation you have made in this exhibit 65 is substituted for the calculation for the Alberta Natural Gas Grid Limited which is set up in exhibit 15 in the Northwest hearing?

A Yes, sir.

(Go to page 1988.)

Q As I understood you to say yesterday, that what you did here was transpose the rates used by Mr. Goodbody in making the exhibit, in making his estimates which he sets out in Exhibit 15, to the abbreviated gathering system you have here?

A Approximately that.

Q Yes? Now, then, you also mentioned yesterday, I believe, that your price per ton for steel was based on Milwaukee?

A Yes.

Q That your shipping point for your freight estimate was from Milwaukee?

A Yes. Pardon me, I may have mis-spoken myself. The basing price for freight was from Milwaukee, but we do take some other points.

Q And your terminal point in Alberta was where, Lethbridge, or somewhere near there?

A I think it was Calgary, and I think it was the only point available at the moment, but I am not certain what it was. I cannot remember.

Q Well, just that we will understand the relationship of your exhibit, Mr.Dixon, Exhibit 61, which is the contract between the Northwest Natural Gas Company and Canadian Gulf Oil Company?

A Yes.

Q You set out in Exhibit 3 the total cost to the Northwest Natural Gas Co pany and the Alberta Gas Company, and these costs total $71,611,000.00?

A That is the basic cost, yes.

Q And those costs are similar to the same costs as set up in Exhibit 15, except with respect to the additions that

you mentioned a few minutes ago as having been suggested by Mr. Goodbody?

A I cannot remember exactly.

Q But they are approximately your total for the two submissions, I am sorry, your total for the two systems, Mr. Dixon, in Exhibit 15. Have you Exhibit 15 available?

A No, sir. I cannot testify on that. I cannot testify directly on it. That was not my exhibit.

Q You can read the exhibit if you have it, I presume?

A Yes, certainly I can read it.

THE CHAIRMAN: Here is a copy of it here.

Q MR. McDONALD: What I am examining you on, Mr. Dixon, so that you will understand it, is not Exhibit 15, I am examining you on the exhibit which you yourself have filed here as Exhibit 61. I would like you to keep that in mind. We will take Exhibit 15 at page, following page 25, you have a total estimated cost for Alberta Natural Gas Company of $21,324,997.00, and you have a total cost of the Northwest Natural Gas Company at $55,125,862.00. Now, if my figures are correct, the total amount of those is $76,460,859.00. I was just wondering where the other $4,000,000.00 odd has gone in the meantime?

A What $4,000,000.00 odd? What are you referring to, in the contract with the Gulf Company.

Q Yes?

A Well, that was an agreed figure.

Q Oh, I see?

A To make the escalation clauses up and down.

Q So that there were some things left out of this?

A Yes.

Q And they are interest during construction and some overheads?

A Yes. It was a different set of figures. They do have only a general relationship to the others. That was an agreed figure, a bargaining figure.

Q That is a bargaining figure?

A Yes.

Q Just a moment, Mr. Dixon. I am sorry, I made a note on another contract. That is fine, thanks, Mr.Dixon. That explains the point. Now, some time ago when you were last on the stand, in June, 1950, you placed in evidence Exhibit 29, which is the design of pipe line?

A Yes, sir.

Q And a copy of that is attached to Exhibit 61?

A Yes.

Q And that is identical with the exhibit, is it not?

A Yes.

Q Now, as I understood your evidence at that time, this is your design, that you were the engineer who made the design, is that right?

A Yes, with the help of others, of course.

Q But, I mean, it was your final decision as to what the design was, and you are the one who accepts the responsibility for it before this Board?

A Yes.

Q Now, if you will just look at - I think it will be more convenient to look at it in Exhibit 61, or in any of the other contracts which were handed out.

A You will note there is one change in this exhibit from the one I put in before.

Q Yes, sir, which would that be?

A The line going from Monroe to New Westminster.

Q What is the change, Mr.Dixon?

A It is now an 18-inch line.

Q And previously it was a 22-inch line?

A Yes.

Q And is that the only change?

A The only one I can remember.

Q Now, I was just interested in the compressor station, and taking your compressor station at Pincher Creek, the Pincher Creek compressor station in the right-hand upper corner of the exhibit?

A Yes.

Q Now, you have provided, or you have installed horsepower of 6,160, is that right?

A Yes.

Q And you have a required horsepower of 5,331?

A Correct.

Q Now, then, you have provided for, there is an excess of 800 horsepower?

A Yes.

Q And was there a particular purpose in having that excess horsepower available in that station?

A It is always desirable to have at any important station, to have excess horsepower at any important station, so that if one engine is down, which you can figure on part of the time, you have excess horsepower. It is a common practice.

Q What is the size of the engine units which you intended to have installed?

A Whichever happens to be the cheapest at the time.

Q What would be your present judgment as to the units that you would have there?

A I should think - there now is a tendency to larger units. You can get them much cheaper per horsepower unit, but that in turn lacks flexibility. It is better to have a large number of smaller units to make it more flexible, but it is cheaper to have very large units. I should say either 800, somewhere between 800 and 1500 horsepower, something on that order. Maybe 2000 horsepower for some of the engines.

Q Now, the installed horsepower, of course, would be the equivalent of the capacity of your engines?

A Yes.

Q Now, what percentage did you de-rate your enginers in order to instal them at the elevation of Pincher Creek?

A Did not de-rate them.

Q This 6,160 then, is the capacity of the engines?

A Yes.

Q Well, are you going to get that capacity out of your engines at that particular point?

A Approximately. You have a little drop on account of the elevation, but you can supercharge them without much trouble.

Q The elevation at Pincher Creek is what, approximately 4,000 feet?

A No, the elevation is approximately 2,000 feet.

Q 2,000 feet?

A Yes.

Q So that de-rating would be a very minor point?

A It is not a very big point, and you can supercharge them.
Q You mean by supercharging, you mean overloading?
A No, to have pressure.
Q Will you explain it, Mr.Dixon?
A Well, just like you supercharge anything, you put in the pressure going into the carburetor.
Q And that would compensate then for the capacity of the engines?
A Well, I am no expert on engines, although I have fooled around with them.
Q Yes?
A But in elevations of about this size in the El Paso work, they never made any special calculations on account of the altitude.
Q Now, it has caused me some concern, this 6,160 horsepower installed. Just what units could you buy or get made up that would make up that particular amount of horsepower?
A Well, you can buy them in any units you want. Generally you have some large units and then have some smaller units, which gives more flexibility. That is a common practice in actual work.
Q Well, what did you actually have in mind when you arrived at the figure of 6,160? Surely you did not just do it that way?
A I forget. I would have to look up my notes on that.
Q Well, would you be good enough to let me know that tomorrow?
A I will be glad to.
Q Now, then, let us turn to the Portland area?
A Yes.
Q I think Winton is the station there, is it not, the closest

station to Portland?

A No. It is right in Portland. It is in the contract. It is their gas plant in Portland, and then we allowed for a station in Longview - in Vancouver.

Q I mean, is there, on your Exhibit 29, and on this exhibit that we are looking at, is there a pumping station there?

A No, there is no pumping station at Portland.

Q There is no pumping station?

A No.

Q You have not any installation there which is intended to be owned by the Northwest Company?

A No, there is no installation in Portland, excepting, of course, there would be the ordinary metering.

Q The ordinary gate established there?

A Yes.

Q As I read your exhibit, it shows that your station pressure is . . .

A One hundred pounds there, and we have in the contract 150 pounds, but the amounts to be delivered according to our contract is a great deal less than the total amount here of 108, it is, I believe, 70, wherefore it comes out to about the same thing, but it is easy to get it, for 70 million a day at the same horsepower you can easily go up to 150 pounds there.

Q Well, now, is this 100 pounds, or do you say it is going to be 150, is that the average peak day? Is that the average for the 24-hour period?

A No, we promised to keep that pressure at at least that pressure, no more.

Q At any time during the 24 hours?

A Yes, at all times, if they want it.

Q Now, then, let us look at that. Isn't there what you call a pressure cycle over a period of 24 hours at a city gate for a market such as the Portland area?

A Why, certainly.

Q And what would be the variation in it, what did you think would be the variation in it when you made this estimate?

A We would keep the pressure at 150 pounds.

Q That is not my question, Mr.Dixon. I want to know what pressure cycle you had in mind when you decided to put in 100 pounds per square inch in this vicinity?

A Well, if we can keep 150 pounds going continuously, you need not worry about lowering it.

Q Well, that is not my question. What is the variation of pressure at the Northwest station at Portland that you envisaged when you made this estimate?

A I do not know and do not care.

Q Well, can you tell me anything more about this pressure cycle that I mentioned?

A No.

Q Have you ever heard the term before?

A Yes.

Q Have you met it in your experience in this business?

A No.

Q You have not sold gas, then, as I take it, to a market area such as Portland?

A I certainly have.

Q In the area that you did sell gas to, was there a pressure cycle?

A Of course, there was a pressure cycle, there is bound to

be, but there was no mention of it in the contracts and no consideration given to it.

Q I am asking you as an engineer what you can tell us about it?

A I cannot tell you anything about it. I just heard it as a term, and never paid any attention to it.

Q All right. Is it true that over 24 hours the pressure will build up overnight to, say, some point over and above your minimum during the day?

A Why - you mean there will be a variation of peak?

Q Yes?

A The pressure need not be changed. It could be kept constant if you wanted to, but there would be no sense in doing that. There are probably a few such things where they do not want it to go over 150, and would have to put the reducing valve there and keep the pressure somewhat above 150, and that would keep a constant pressure of 150 into the mains of the city, which is greater than they want. As a matter of fact, I personally do not think they should have near 150 pounds pressure.

Q You do not think so?

A No.

Q You are talking about what is called, or what some call a Fisher valve which keeps. . . .

A A what?

Q You are talking about what is called a Fisher valve which keeps the pressure constant on the one side?

A Yes, there are many valves that will do that.

Q In view of the pressure being constant on the upstream end at 150?

A Where do you mean?

Q Do you have enough pressure at the Winton compressor station to keep it at 150 pounds, if such a valve were put in?

A Yes, at the contract price we have made.

Q In view of the fact that in a market such as Portland you will have peak hours that far exceed your average during the day?

A I do not think Portland will have a great deal of that, or Seattle or Vancouver, on account of the act that they have fairly constant temperatures there, but, of course, it does vary on a day like Thanksgiving Day and Christmas, that is the time when you get your peak consumption, but I think they will, on account of the form of the contract, they are going to do their best to hold it at a constant load, but it will be very advantageous to us if they do not.

Q Isn't it usual, you mentioned it when you stated Thanksgiving and Christmas time, isn't it usual for people to get up in the morning and cook their breakfast and heat their houses?

A Why, certainly.

Q And at five to seven o'clock in the afternoon for them to get home and start cooking?

A Yes, those are the two peaks.

Q Those are the two peaks?

A Yes.

Q And you are satisfied, as a designer of pipe lines, that your provision of 100 pounds per square inch at the Portland station is sound and good designing?

A It is more than you need.

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Q More than you need?

A Yes. Now, what they need, what they want the 150 for is possibly to put into their main line going south from there. They have a large distributing system going up to Eugene.

Q Yes?

A And what they would like that pressure for is possibly to put it into that so they would not have to repressure that so much. Most city gate contracts are 50 pounds, which is all they want, all they can put into the mains.

Q There is a very considerable distribution system in existence in Portland?

A Yes, outside of the city.

Q It goes almost 100 miles south of Portland?

A Yes.

Q Now, then, would you just repeat again, I am sorry, would you refer to the Sandpoint compressor station in your Exhibit 29?

A Yes.

Q You have got a required horsepower there of 9598, and installed horsepower of 9550, 9450, I am sorry. Now, I was just wondering where your provision for standby equipment is in that station?

A There is none. That is, you see, the stations along the line do not require as much standby as the others, because if one goes out there it is not anything like as serious as it would be if one went out at the start of the system. The required and the installed are approximately equal. Remember that this is for peak load requirements, all of

these are.

Q Yes?

A Which would only occur after a long period of time and on a comparatively few days, but to get the gas into the line and keep the thing packed you have a very considerable safety factor in that.

Q Yes?

A And you would ordinarily have the line fairly well packed?

Q Yes. Now, isn't it true that if you had trouble at your Sandpoint compressor station, that the effect of that could be felt all the way down to the Portland gate?

A Oh, yes. But you could have it at the Sandpoint compressor station and still get a very large quantity of gas at the Portland gate.

Q But you would not get the continuity of gas that you have depicted in this exhibit?

A Of course not. But that would be the same if that or anything else happened, if you got a break in the line, it is all the same.

Q Now, you mentioned a line pack. Can you tell me how fast gas moves in a line of the general nature which you have here?

A Yes. I worked that out once in the case of the Tennessee line. When it is under considerable pressure, - of course, it depends what you mean by the speed at which gas moves. If this is a line at 200 miles between stations, at a pressure of 650 at one end and 100 at the other, the gas will be moving about five times as fast at the outlet as it is in the intake, so that I do not exactly know what you

mean by the speed at which gas moves.

Q Let us take an example? Take your Vancouver line?

A Yes, sir.

Q You have a higher pressure in Vancouver, around 600 pounds in the line, as I take it, and how fast would that gas move down to Portland if you had to draw it?

A If you open it up it would move at a terrific rate. It all depends on what the differential in pressure is.

Q Yes. Let us take it at 600 pounds and 100 pounds?

A I would have - at what point in the line would you like to know that, on the average here?

Q On the average, yes?

A Well, I would have to figure that out, of course. That will take quite a little calculation. I do not see just what the point is.

Q It was on this point, taking the pressure at the two different points, and the gas has to move, how much gas would it hold?

A Well, the line would hold - a line somewhat the same size at 700, at about 500 pounds pressure, had about six days' supply in it, but what the capacity would be one would have to figure that out. There is several days' supply in the entire system.

Q Well, now, in the Sandpoint compressor station, you indicated that there was no standby installed horsepower?

A Yes.

Q And the same is practically true of the Spokane River compressor station also?

A Yes, and none of the others have any. You want to remember that the horsepower is not a fixed quantity, you can overload

an engine 20% if you have to for a short period of time.

Q Yes. And that 20% is a generally accepted figure, is it not? You could overload 20%?

A No, I do not think so. I say you can do it in an emergency. It is very bad practice unless you have to do it.

Q Wouldn't you think it good business to have designed this pipe line system with a 20% over capacity, having regard to your horsepower?

A I do not think so. There are differences of opinion on that, but my idea is it would not be a good idea.

Q Now, in these other pipe lines you have designed, and I understand you have designed other pipe lines, do you design them, or did you design them on this basis, or did you provide for a surplus of horsepower?

A Well, in the original installations, they were almost on an overload capacity for the final design, and then as things developed we left a design of such a kind that stations could be changed without any additional cost for the auxiliary, which is the sensible thing to do.

Q Now, then, take your design of pipe lines, or, taking the designs of pipe lines that have been placed in evidence by the other companies, and taking the Trans-Canada pipe line for one, would you suggest that they design their pipe line exactly the same as you have done, as far as pipe line capacity is concerned?

A I should not suppose any two engineers would design exactly any two pipe lines.

Q Would you consider it an economic pipe line having regard to the fact that your compressor station capacity horsepower installed is practically the same to the required horsepower,

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and that is all it will do?

A Well, I think it is up to their engineers to say.

Q No, I am asking you, as a professional engineer and as a man interested in the business of designing pipe lines, to tell this Board whether that is a proper design of pipe line?

A I would say to do it as near to their power capacity at the start, yes, and as the engines get older, to add additional ones.

Q The only reason I ask you, Mr.Dixon, is that it makes a very considerable difference in the estimated transportation costs of gas as between these parties here if they have not included in their investment this surplus horsepower, isn't that right?

A It is not a very large difference, percentagewise it is very small.

Q But, apart from that, it is your evidence as a design engineer, that that would be an acceptable economic method of designing a pipe line?

A I think at the start; one has to add, of course, as they go along.

Q Well, I am not thinking of adding over and above your estimate, but for that capacity of pipe line, as set out in the design?

A That is the practical thing to do. You should have excess at the start.

Q Yes?

A And then in the stations along the way that is not so important because you would be getting gas coming through anyhow, and if there is an engine down, you can overload. I think that is a good method of doing it.

Q And you told me that the overload could be as high as 20%?

A Oh, I would not say. I would say 10% for any length of time; just a short time for 20%.

Q And then we get back to the size of the installation, the size of each compressor installation, the number of small units you have?

A Well, that is a thing that people argue on a great deal, and it would be a matter here of what you could get, as things are now, you would get what you could, you would not try to dicker on the size. I think it is a very small part one way or the other.

Q Will you just tell me about this Exhibit 29 again? Is the economic capacity of this pipe line, as you have now designed it, exactly the capacity you set forth in this exhibit? In other words, your peak day is going to be what you have got it here, and no more, as you have designed it now?

A Of course, that is not true. As we have designed it, yes.

Q As you have designed it?

A Yes.

Q In other words, you have no surplus in this particular design now?

A No.

Q The reason I ask you is that I calculated that you could not put more than 3½% more beyond the peak day?

A 3½?

Q Yes?

A I think you could. You cannot design lines with any such accuracy.

Q I agree with you, Mr.Dixon, but with one or two exceptions I cannot possibly see how you can get any more gas through. How can you put more gas through than you have installed horsepower to put it through?

A I do not anticipate it. This is the design for the peak day.

Q Now, as I look at your design, you have set up your required horsepower for the entire system at 42,692. I have added it up?

A Let us assume that is correct.

Q And I have your installed horsepower as 44,250?

A I think I have it somewhere.

Q I think it is in some of your exhibits, Mr.Dixon. I have had that checked so that I think it is right, Mr. Dixon.

DR. GOVIER: What was the figure, Mr. McDonald?

MR. McDONALD: 42,692 horsepower as being the total of the required horsepower.

DR. GOVIER. Yes.

MR. McDONALD: I mean, it is set out in each of these documents.

A 44,250?

Q No, 44,250 is your installed horsepower.

A Yes.

Q I tyink that is correct. So that you have a surplus over your requirement of 1558?

A Yes, very small.

Q So that you have a surplus horsepower of 3.5%, which is very small?

A That is very small, but the safety factor in a thing like that is very different from the safety factor in the construction of a line.

Q I agree with you, Mr. Dixon, of course. You consider,., as you told me, and I should not labour it, that you think you have done an adequate job in this design of the pipe line?

A Yes, sir.

Q Now, I understand that you have provided in your Vancouver end of the market. for a pressure of 604 pounds?

A No.

Q Maybe I did not read that right?

A That could be put up to that, but we were considering at that time that they might want a high pressure in order to bring the gas up the valley.

Q Yes?

A But they will be willing to take 150 pounds, I think. I have not negotiated any contract with them.

Q Now, let us go into that? You were going to give Vancouver 604 pounds to take gas up the valley, but you were going to give Portland 650 to move gas down the line?

A That was a case of bargaining.

Q I am glad you brought it out. You were doing it so as to be able to make a better job of bargaining?

A Yes, I think they will, because they are in a better position.

THE CHAIRMAN: Mr. McDonald, I think we will adjourn for a few minutes.

(Hearing resumed after short adjournment).

Q Mr. Dixon, I have just another few comments in this problem of compression. I read last night the qualifications that you placed on the record, and I appreciated, and we all do, that you can tell us something about this matter of engineering of these pipelines, and I think it is a very important matter as far as the Board is concerned. Now, I would like you, if you would be good enough, to give me some help particularly with regard to your own design. You tell me how you would meet the difference on your Exhibit 29, how you would calculate the resulting pressures at your market end of your line if you lost the Moyie compressor station or the Sandpoint compressor station.

A Well, that is very simple.

Q Yes?

A You would not. You would not have them if you lose a compressor station. You would have to cut back on some industrial load in an emergency just like a break in a line.

Q Well, what would be your pressure at the outlet of the Winton compressor station?

A You mean, if one station went out?

Q Yes.

A Well, that would have to be figured out. It would be a great deal less and it throws the whole thing out of gear, of course, but we do not expect, excepting in the case of a disaster, to have that. A few compressors going out would lower the capacity of the whole system, naturally, but in general principle I think in the first construction of a line you should make the construction as skimpy as you can to save money, then as gas developed - - you do not know

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exactly where all the load is going to be on the line in the first place -- as things develop, then you put your compression in where it is needed. Now, with these new type of centrifugal compressors that has changed the whole idea of design of lines. You can put those in here and there to bring the pressure up to slightly under 20 per cent, and that is very helpful in giving some general flexibility, but we have not considered that in this part of the line.

Q Well, Mr. Dixon, I mentioned the extreme case of losing the whole compressor station. Let us take it that you lose or that you are out of service on one unit in the Winton station. Say you have 4400 horsepower and, say, you have four 1100 horsepower units, and 10 per cent overload, of course, on the other remaining units, what would be your resultant compression at Vancouver? I was going to suggest to you you could figure that out over night and let me know in the morning.

A If that is considered of any value to the Board I would be glad to.

THE CHAIRMAN: I think it is a fair question, Mr. Dixon, and should be answered.

Q MR. McDONALD: I was just going to give you, sir - -

A Will you repeat that so we will get it?

MR. NOLAN: Well, we will have it in the transcript, Mr. Dixon.

A Quite.

Q MR. McDONALD: I come next, Mr. Dixon, to this question of cost of pipe. You set up in your Exhibit

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filed today, Exhibit 66, cost of pipe, I think, at $125.00 per ton and you have your freight at $44.00.

A That has been the figure we have used.

Q Can you tell me now the present current price of pipe fabricated at the Los Angeles mills of Consolidated?

A I can not tell you the very recent prices but I believe this is under the control of the United States boards. You would certainly not construct this line without allocation of steel. Not only is the still allocated but the mills from which it comes are designated and the price is designated, so that is something if you were to try to get spot locations for any given quantity of steel -- now, it is meaningless.

Q The only thought I had in mind, Mr. Dixon, reading the submission filed by Pacific Northwest Pipe Lines and Prairie Pipe Lines Limited, they show a price of steel at $140.00 per ton. Have you any comments to make on that?

A I think that is too high in the present allocations but that is something of what would happen when the time came and is anybody's guess.

Q So that your quotation in your Exhibit 15 filed in the previous Hearing of $125.00 is subject to adjustment?

A Absolutely, of course.

Q Now, then, could you tell me this with regard to your cost of your Alberta Natural Gas Company and your Northwest Natural Gas Company, do you still intend to have your delivery point of your pipe Spokane and you then move it by truck as far east as Pincher Creek Station?

A That would all depend, as things are now, upon the way the various proper authorities of the United States consider is

the proper and best method. That is beyond our control if we were starting to build the line now, so our intentions would be of no special importance.

Q I am only interested in what you should now estimate for the cost of doing the job?

A Well, I think taking it as we have done is a fair estimate. Of course, any estimate of cost in the fluctuating periods before you have the firm contract is an estimate, it is nothing more than that.

Q Mr. Goodbody told us, I believe, that the freight rate from Los Angeles to Spokane was $16.00. Do you know if that has increased since that estimate?

A I think it has, slightly,

Q Do you know how much?

A I forget.

Q My information is it is $30.98 per ton.

A I think that, as a matter of fact, was an error of Mr. Goodbody's which we corrected. I think he just put down the wrong figure. I think that is one of the errors we mentioned, that was already mentioned, that we had the wrong freight rate.

Q So that that freight rate then would be correct to Spokane and Seattle from Los Angeles, as put in your Exhibit 15?

A Yes. We have made some, we can not make them all. We do not claim to be perfect.

Q Well, then, Mr. Goodbody was very certain that it was a good idea to truck this pipe out of Spokane and deliver it along the route. Now, could you tell us what basis per ton mile he had in mind for the cost of that particular hauling?

A No, I can not tell you that.

Q Now, could you tell me this, then, is it not customary in the United States to rent hauling trucks between railway shipping points on the basis of per ton per mile?

A The ordinary way of trucking a pipeline, you would make a contract with a pipe stringer, which are contractors who do nothing else, and make an agreement with them to take it from the railroad and lay it along the line at a contract price for that job.

Q Well, is that based on per ton mile?

A That is based on the competitive bidding between the different hauling contractors.

Q Well, I am just wondering whether there is not some basis behind the competitive bidding?

A That would be the condition of the roads, and the ton miles, and a whole series of things.

Q Well, aren't we a little bit different from that? Trucking, it is one thing, but transporting 150,000 pounds of pipe over a highway each direction out of Spokane is another thing.

A Well, they have such extraordinary freight rates in the United States where they have the long and the short haul, and I believe you are plagued with that same philosophy in Alberta.

MR. NOLAN: Not any more.

A It is very difficult to figure just what you should do. I know in the case of the Panhandle line we hauled the pipe and took it by freight 50 miles beyond where we wanted it and hauled it back for 100 miles and made money because that was the breaking point in the crazy freight rate

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structures that we have.

Q In other words, Interstate Commerce Commission tariffs?

A It is something you have got to consider when you are doing this work.

Q And isn't that tariff related somewhat to railway transportation or freight costs?

A No. I don't care to go into the philosophy of the long and the short haul. That has nothing to do with distance, I can say that.

Q Can you tell me, what would be a proper allowance to make in investigating your construction costs trying to arrive at some conclusion with regard to this item of hauling your pipe from Spokane?

A I can not testify on that.

Q Well, would you agree with me that 10 cents per ton per mile would be a reasonable rate for moving that pipe?

A On very good roads?

Q Well, I am thinking of the roads between Spokane and Pincher Creek. They would be very good except for where you leave them to go to your pipeline, is that not so?

A It would be very good roads all along and the distance from the good roads to the pipeline is very short in nearly all cases. There would be very little of the made road type of business.

Q So that it would be a minimum, and I suggest to you that 10 cents per ton mile is a reasonable hauling rate.

A On extremely good roads, that might be. I think that is a little low.

Q Well, I am suggesting we kind of feel it is a fairly good

rate in this country, the thing I am talking about?

A Yes.

Q Well, then, I have tried to calculate within the Alberta Natural Gas system, for the Alberta Natural Gas system, a charge that should be made or allowed for hauling of the pipe. This is not stringing the pipe, this is hauling it to, for instance, Fernie or Cranbrook or wherever it is. Now, as I read your Exhibit 2, the distance from Spokane to Kingsgate, that is, pipeline miles, is 120 miles, is that right?

A I think so.

Q Now, the distance from Kingsgate to Pincher Creek Station is 170 miles, according to your Exhibit 15, and your other exhibits with regard to the route. Now, that would give you for your Alberta Natural Gas system then, you have to move your pipe to Kingsgate first, then from Kingsgate the average piece of pipe would move one-half of 170 miles, which is 85 miles. Do you agree with that?

A If it is done that way.

Q Now, Mr. Dixon, Mr. Goodbody said it is going to be done that way.

A Well, he was making an estimate of what he thought then was the cheapest way. Maybe it will work out that the railroad would be better. The railroad rates have changed somewhat.

Q Well, we are using our best judgment. That was his then. I understand it is yours now?

A I have not had a chance to investigate the thing. Times change, rates go up and down, the rates improve. Now the rate is a great deal better.

A. F. Dixon,
Cr. Ex. by Mr. McDonald.

Q Let us continue and see if you are not reasonable. You would have 28,475 tons of pipe to move, according to your Exhibit 15. That is the amount that is set up in your Exhibit 15 for the pipe in the Alberta Natural Gas Company. Now, if you are going to move that 205 miles at 10 cents per ton mile, in my calculation it is as follows. You can tell me if you think it is the proper way to do it. Take 28,475 tons, multiply it by the number of miles, multiply that by 10 cents, and divide by 170 to give you the average cost per mile of delivering that pipe?

A That is correct.

Q That comes to $3,450.00 per mile. Now, you, making the same calculations with the Northwest Natural Gas line, which, according to your exhibit is 652.1 pipeline miles, this is not transportation miles, you have 103,437 tons, and I suggest that you take a mid-point, Spokane is midway between the two, take one-half of the midway point, which would give you 160 miles roughly, make your calculation then at 103,475 tons times 160 miles, times 10, divided by 652 miles, gives $2520.00 per mile. Do you think that would be a reasonable allowance?

A I can not say.

Q Do you think $1,000.00 a mile would be a reasonable allowance? Surely you have some idea in your costs for this pipeline, this item of freight?

A I can not testify as to Mr. Goodbody's exhibit.

Q I am not asking you to testify as to Mr. Goodbody's exhibit but as a man who has built a great many pipelines. Tell me whether that would be a fair charge for freight?

A You mean for stringing?

Q Not for stringing it, for hauling it from Spokane and getting it here.

A I would have to look that up. I hate to answer offhand a thing like that. It is a little difficult to figure that in ones ahead immediately.

Q Rather than figuring it, Mr. Dixon, you, of course, could tell me exactly what you use in your estimate?

A I didn't make the estimate, Mr. Goodbody made the estimate.

Q Yes. You accepted it and as a pipeline engineer you are standing behind it?

A Yes, I am standing behind him in the over-all cost. Of course, we all can make errors.

Q I am suggesting to you, Mr. Dixon, that the hauling of pipe from Spokane to Seattle and Vancouver, Portland, on one end, and hauling it to Kingsgate to Pincher Creek Station on the other, that a charge of $2520.00 for the United States portion is a fair and reasonable charge and that $3450.00 for the Canadian portion of the line is a fair and reasonable charge.

A I just can not answer that off-hand.

Q So that your experience in this business does not put you in a position where you can give the Board the benefit of your experience?

A Not off-hand. I would have to get my maps and look at it. I am just not bright enough to do that on the stand.

Q All right. Now, I just wanted to check another item, Mr. Dixon. We have not Mr. Goodbody here and I am going to ask you again just to do some arithmetic for me, again

realizing that you are familiar with these exhibits. Exhibit No. 15 is, I take it, Alberta Natural Gas Company. This will be on route B. You have an item, "Estimated Construction Cost Main Line in Alberta and British Columbia, Installation Costs, Clearing, Excavation, Back-fill, $1,536,619.00." "Pipe Placement, Bends, Welding and Coating, $1,176,983.00." Then you have, "Valves, $42,500.00". Now, I am not interested in valves, so I have subtracted $42,500.00 from the total that you show on this exhibit for that installation cost, leaving $2,713,602.00. Now, am I right in calculating your average cost per mile for installation by dividing that item by 170 miles, which is the distance of pipeline miles from Kingsgate to Pincher Creek Station?

A It may be that you should have added some things to it.

Q Well, I am going to add one thing to it. I have done that and my total is $15,850,00 per mile. Does that strike you as being approximately right from your knowledge of these things?

A 15?

Q $15,850.00 per mile.

A More or less in the realm it was testified to at great length by Mr. Goodbody who broke it down into small segments and gave you all the facts, assuming that your arithmetic is right.

Q Yes. Then, are we to bring it into line with, as you mentioned this morning, we have to add to that contractors' fees, which is 5 per cent, accorfing to your summary of estimated construction costs? I have taken that as $740.00. So on your exhibit, as filed, on the basis, of course, that

my arithmetic is right, your installation cost is $16,590.00?

A Somewhat over $3.00 a foot. That is in the proper realm.

Q Now, making the same calculation with regard to Northwest Natural Gas installations, that is 652.1 miles from Kingsgate to the end of the American system, I get $15,100.00 plus 5 per cent, which gave me a total of $15,850.00 per mile?

A That includes some very difficult going, a little difficult going and a very large amount of very easy going, which was all broken down and testified to in segments.

Q The only thought I had in mind, though, was, Mr. Dixon, it does include good going from Sandppint to Wenatchee, that was all?

A Excellent going.

Q There would be some excellent going on the west side of the mountains but there would be rough going in the Cascade Mountains, and there would be rough going in the Rocky Mountains?

A The Rocky Mountains there aren't so bad, you are going through the pass and the worst going is after you get through them, really.

Q But there is considerable rock, some rock, considerable gravel and considerable rough going in the mountains?

A It isn't rough going in the Rockies, it is bad in the Cascades. We have the tunnel there which helps some but it is not easy going, and there was a very large amount of testimony given on that.

Q Yes, we will come to that, Mr. Dixon. Now, the items

that I have mentioned, however, also include this hauling that I mentioned, do they not?

A I do not know, I do not remember.

Q My recollection of Mr. Goodbody's evidence is that installation costs include the hauling items that we discussed a few minutes ago, so again, assuming my arithmetic is right, and if the experience that I have been advised of or obtained from information given me in regard to hauling costs is correct, you deduct from your Canadian section of the line of $16,590.00 some $3450.00, is that right? I mean, some deduction should be made?

A I do not remember just how he carried that, whether he included stringing as part of the construction or a separate item.

Q If you take it from me that the record shows it did?

A It was a separate item.

Q It was in the installation costs?

A Yes.

Q So that would give you an installation cost in Canada of $13,140.00. I am speaking now of just - -

A Per mile?

Q Per mile, yes.

A Yes.

Q And if you deduct the $2520.00 in the United States costs, you would have a cost in the United States of $12,580.00 per mile of installation?

A Yes.

Q In other words, it is cheaper to build your line in Canada than in the United States?

A Well, if that is the way it was worked out by Mr. Goodbody, that is the way it was.

Q And you stand behind that?

A I stand behind all of his work. Of course, these things are dependent upon a particularized locality and the local conditions.

Q Now, Mr. Dixon, you have made several references to Mr. Goodbody filing the data in detail in regard to your estimate.

A In regard to his estimate.

Q In regard to his estimate. Do you know if that was circulated to counsel?

A Well, he certainly testified here at enormous length.

Q Yes, I know he did, Mr. Dixon.

MR. NOLAN: The Board will remember that Mr. Goodbody's work sheets after some argument were put in in evidence.

MR. McDONALD: Well, now, they were filed as what number exhibit?

MR. NOLAN: I don't know, it was so long ago.

MR. McDONALD: The only thing I have to say, Mr. Chairman, is this, after consultation with Mr. Dixon Mr. Nolan stated:

"We have discussed it with Mr. Goodbody and only took about 30 seconds to arrive at the conclusion that the company, with our permission and our request, will present to the Board details of how all these figures are made up by way of a separate

> "submission which will be prepared and presented to the Board, and of course made public as evidence at this Hearing. That can not be done in a moment, as you well know, sir, but it will be done and I am sure that the information which will be provided will be quite satisfactory both to the Board and counsel."

That is Volume 10 of Northwest Hearing, June 8th, 1950, at page 761.

(Go to page 2020)

MR. McDONALD: Now, continuing with that, Mr. Chairman, at page 763, and this is the Chairman speaking, you said:

> "So that if we have the detailed information by sections, or the amount of clearing, excavation and backfill, if that could be separated, then you have your classifications for the different sections and the unit price for each. Is that sufficient, Mr. McDonald?"

And my answer was, sir,

> "Yes, that is what I had in mind, that he would take the sections he had in his picture, for instance, Pincher Creek to Bellevue, and would classify it in slightly rolling, rolling, rock."

etc.

Now, sir, I have not had the opportunity of seeing that information, and if it is on file with the Board I would be glad to see it.

THE CHAIRMAN: I do not think, Mr. Nolan, that that information was given to the Board. I have a note of it here. I thought this additional information would be given at this time.

MR. NOLAN: If there is any additional information required we can make it available.

THE CHAIRMAN: Yes, I think you agreed at the time, Mr. Nolan, to do it. It may have been that after the later Joint Hearing it was forgotten.

MR. NOLAN: I do not remember very clearly. As I say, it is a long time ago. I know that we put in a tremendous amount of evidence with respect to these matters

and I thought it was closed, but if it has not we will close and repair the breach.

MR. McDONALD: The only point I wish to make, Mr. Chairman, is that evidence was put in about everything except the one point that would make the estimate worth looking at.

A I beg your pardon, but I think that we put in all the details with regard to construction and the cost, and we put in a great amount of detail with regard to it.

MR. McDONALD: I think we will leave that to the Board, Mr. Dixon. The only thing that I have in mind is that you were going to file it.

A I think it has been filed.

Q All right. While we are on this point, Mr. Dixon, as I understand it, having arrived at your unit costs, and if my arithmetic is correct, with regard to what you have told me is the more difficult part of your line, I was wondering how you arrived at $14,520.00 as the installation cost of a 24-inch pipe line between Pincher Creek and Princess Station?

A That was testified to.

Q Well, the only thing I want to know is how many trees you are going to cut down between Pincher Creek and Princess?

A I have not the faintest idea.

Q And how much rock you are going to drill between Pincher Creek and Princess?

A Pincher Creek and Princess?

Q Yes?

A The rock will be very, very small.

Q And I suggest to you that the only trees in the country lie

in the odd river bottom that you go through?

A Practically so.

Q You may have some rock in the vicinity of Pincher Creek itself?

A Well, a little ways off from there you might have some, but it will be very insignificant.

Q And taking that price that you have put in evidence and comparing it to the price of other sections, it costs less to build right through the Cascade Mountains and the Rocky Mountains per mile than that. Now, how do you explain that to the Board today?

A Will you repeat just what you have asked me exactly?

Q You have a less per mile rate through the Rocky Mountains and the Cascade Mountains than you have for building on the Alberta prairies?

A I think you are wrong in your figures.

Q Well, do you disagree with me then?

A Yes.

Q Well, would you be good enough to show me where I am wrong and tell me tomorrow?

A Yes, I think I can.

Q I mean, I do not want to be unfair.

A I cannot remember all the details of what happened a year ago.

Q I am not asking you to remember anything, Mr. Dixon. All I am asking you is to take the exhibits filed by Mr. Goodbody and do some arithmetic on it, and then tell me whether I am right or wrong?

A Yes.

Q You do not need to do it now, Mr. Dixon, but if you would be good enough to do it for tomorrow, and I am sure the Board will allow me to examine you tomorrow?

A Yes.

Q Let us turn to another exhibit, Mr. Dixon, and that is exhibit number 66?

A Yes.

Q Now, this exhibit 66, I think it is, is the estimate of annual revenue and expenses?

A Yes.

Q I am interested in something here, turning to your construction costs, and that is interest during construction. Do you have the exhibit, sir. "Estimate of Annual Revenue and Expenses"?

A Yes, sir.

Q On page 7, schedule 4, you have interest during construction of $2,444,000.00?

A Yes.

Q Yes. And then you have at the bottom of the page, "Construction Period - 10 Months"?

A Yes.

Q Would you just explain to me, is that the construction period, the 10 months, is that ten months from the date that you begin construction to the date that you complete the line, or is it spread over two years?

A No, it all depends on the time of the year, if it was very favourable, having regard to a time of the year that we started work, we would have an actual ten-month construction period, if we could get the pipe, and I do not think we would

be allowed to get any pipe unless we were allowed to get it all very quickly.

Q Now, my recollection is that Mr. Goodbody, when he gave evidence in regard to this item, said that it would take two years. Do you recollect that?

A I think he also testified that it could be built in one year, in one season, if they had the material, and that it would be a matter of conditions.

Q That is, you would do your clearing, ditching, back-filling and your rock work, etc., all in one 10-month period?

A That would be comparable to the work on the Tennessee line which was over a thousand miles long, a 24-inch line, it went through some very bad terrain, and it was started actually during the latter part of April and we had the capacity of the line, gas going through to full capacity in November.

Q Yes. Well, the net result anyway is, Mr. Dixon, that by using the estimate of ten months to construct your line, you have an item here of $2,444,000.00 as the cost, whereas Mr. Goodbody, making the same estimate, has an item of $3,737,597.00. That is the effect of changing your estimate?

A Yes, that would be the effect of changing the time.

Q Yes. So that there would be greater interest during construction?

A Naturally, if you had an unfavorable length of time, and I think Mr. Goodbody, he is a conservative estimator, was correct in assuming we might be starting in the middle of summer, which would be the most unfavourable time.

Q There has been a change of mind in the meantime?

A If anyone could get started constructing this line in the early Spring, I think this would be the proper estimate.

Q Now, that is the minimum? We won't be faced tomorrow with a lesser time than 10 months, will we?

A If we get a Government subsidy to add to the difference in the costs, which no one expects or wants, you can do it faster.

Q Let us look at the exhibit again, schedule 4 of exhibit 66?

A Yes.

Q You have your interest during construction calculated, as I read it, you started with $69,000,000.00 times 4¼% times 10/12ths, which gives you a total of $2,444,000.00?

A Yes.

Q Now, am I right in saying that in my conclusion you are paying interest during construction only on your first mortgage bonds, which you indicate are $69,000,000.00?

A Unless we would have notes or some interesting paper securities and equity securities, but I believe the general idea is to have that either in common or common and Preferred stock, so you would be paying no interest during construction on it.

Q Well, again Mr. Goodbody did not agree with you, Mr. Dixon. In exhibit 15 he was careful to calculate his interest on the full estimated construction costs of $97,000,000.00-odd.

A That is what I thought was always a proper philosophy, but the bankers told me that I am wrong, so that I think the bankers should determine it.

Q The net result is that you are now taking it on a much less over-all cost?

A No, that is not quite true. As far as that goes, yes. This

is calculating your rate base.

Q No.

A I mean, it is a different, more or less, philosophy, and not in actuality. You have to consider the fellows that put up the money for the common stock should be ultimately getting a return.

Q Yes?

A But this was done by Mr. Goodbody and partly by myself without the bankers giving their word on it, and this is what the bankers say is the proper way to do it, the bankers and the accountants.

Q Well, now, let us look at this, Mr. Dixon, from a business-like viewpoint and not the bankers' viewpoint. Look at it from the Northwest Gas Company's viewpoint. When you appear before the Federal Power Commission of the United States, are you going to ask that your rate base be based on interest earnings during construction on your funded debt only?

A I think so.

Q Or are you going to apply on your entire amount of $90,000,000.00-odd?

A I am told that is what we have to do.

Q It is a very considerable item?

A Yes, it is.

Q As far as the common shareholder is concerned, is it not?

A Well, it is interest for a period of ten months or possibly two years, but not exactly that as far as the common shareholder is concerned. They are the residual beneficiaries of the enterprise.

Q Yes?

A And it is hard to say just how it would affect them.

Q The net result is that the common shareholder on that basis is making an outright gift to the purchaser of the gas of the interest on his money during construction?

A That is what it always seems to be.

Q I put it to you that that is not required under the rules of the Federal Power Commission?

A I just could not say.

Q I put it to you that that is not a business-like thing to do in the next place, no man should give his money for nothing?

A I agree with you in the general philosophy of it, but the way it is done and calculated by auditors and such, that is the way it is done in here.

Q I am suggesting to you that it is done in this way in this particular case in order to give you a minimum rate base for submission to this Board?

A We have no intention of doing that. We would like to have the largest rate base we could possibly have. All of this will be directly or indirectly in evidence when we get to the Federal Power Commission.

Q That is correct, anyone investing in a pipe line wants to have the rate base a high one having regard to the investment of his money?

A As much as possible.

Q Now, there is another difference between these two exhibits too, Mr. Dixon, and that is, in this exhibit filed today you use a contingency of 5%. In Mr. Goodbody's estimates he uses a contingency of 10%. Have you any particular reason for the change?

A Yes, I think the 10% contingency is too much.

Q Is too much?

A Yes, that is in my judgment.

Q Now, there is one thing that I am sure you are familiar with, Mr. Dixon, and I would like to clear it up, and that is this matter of the length of line from Kingsgate to Pincher Creek station.

A Yes?

Q And you will recollect in my examination of Mr. Goodbody he had pointed out that the figure of 170 miles which he used in exhibit 15 was the pipe line miles from Kingsgate to Pincher Creek station and that it included 3% deviation. Now, do you know if Mr. Goodbody has checked his papers and recalculated that item?

A That may be one of the arithmetical corrections he has made.

Q Yes. In bringing the estimate up to date?

A I cannot say definitely now.

Q Well, now, if he did not do it, that would make a difference of 3% in your mileage, would it not?

A Yes.

Q And that would make a difference possibly in your costs of maybe half a million dollars, and you would have 175.1 miles in the Canadian section rather than 170 miles?

A Yes.

Q Well, would you mind telling me whether I have misread your exhibit or not with regard to that point, and whether you should add the 5.1 miles in order to be consistent with Mr. Goodbody's testimony, having regard to your own testimony?

A It may be.

Q Could you tell me that tomorrow also?

A I will try to.

Q Yes. And also having regard to that item, whether or not you should make some revisions in your flow sheet, exhibit 29?

A No.

Q You would not do it?

A No, it is too minute. It is way beyond what anyone could estimate.

Q Yes?

A I mean, these things are not something that can be estimated with a great degree of correctness. And to take it with regard to the 170 miles on an estimated cost of the estimated amount of gas to go through a line, it is getting to absurdities to dry and get a figure as close as that.

MR. McDONALD: Now, sir, there is just one other item. Mr. Dixon has referred to a report that he received from Mr. Goodbody, in which he sets out the details of the increases in his estimate. I would respectfully suggest that that report should be filed tomorrow.

A It is not in the form of a written report.

Q Could you file a short statement which would give us the information?

A Some of it may be - I mean, these things are getting down to such minute fine points, that it is so small in the realm of my claims, or anybody's claims, of estimates, that we get into a complete absurdity.

Q Well, that may be, Mr. Dixon, but we will add up the fine points and see whether or not they are large ones?

A Well, we have given you the amounts and we did not think you would be interested in the small things, that you would be interested in the main points, and we have given you those. We have given you the salient points.

Q I think that is all I can usefully do now, sir.

CROSS-EXAMINATION BY MR. BREDIN:

Q Mr. Dixon, you stated that you had a contract with Shell at Jumping Pound and it was suspended?

A Yes.

Q What do you mean by suspended?

A Well, Mr. Ash has told me that as soon as he has it passed by his Board of Directors that he will write a letter saying that he is not now contemplating that he will be in a position to sell the gas to us over a period of some years and until such time as we would require gas, if we ever should, in addition to our 80 billion cubic feet, that he would not consider the contract has any effect.

Q Mr. Dixon, in the Board's interim report of January, 1951, at page 46, the Board states that it cannot declare the fields at Princess or Pincher Creek surplus until additional dry gas reserves are discovered. Have you any information on any additional gas fields that have been discovered since the time of this report?

A Well, there has been a vast amount of testimony on the subject. I should think Britalta would be one. There have been so many people testifying on that very subject, including my partner, Dr. Brokaw, and he went into it in great detail, and I think that has been covered amply by testimony already

given.

Q You are satisfied that there are adequate reserves to satisfy that?

A Yes, sir.

CROSS-EXAMINATION BY MR. MARTLAND:

Q Mr. Dixon, one or two points with regard to your exhibit number 66, "Estimates of Annual Revenue and Expenses"?

A Yes.

Q Would you mind turning to Schedule 1 on page 4?

A Yes, sir.

Q And referring to the first of the footnotes there, I wonder if you could tell us what is that additional amount of industrial sales referred to there?

A Some additional aluminum works there.

Q Where at, Mr. Dixon?

A In Spokane.

Q Just one plant or does that include more than one?

A One plant.

Q It includes only one plant?

A Yes.

Q And a good deal of the rest of that direct industrial load shown in the United States was, as I understand from your former exhibit, intended for the Atomic Energy Plant at Hanford?

A Yes, sir.

Q Is there any assurance now that sales can be obtained at that plant?

A We think there is.

Q Has there been any recent commitment?

A There is no commitment whatever; recent conversation.

Q There are no recent conversations?

A I say there are recent conversations, but there is no commitment whatever.

Q There is no commitment whatever?

A No.

Q You feel you have an assurance of some sale there?

A I think it is practically certain we will be able to sell gas there.

Q Now, still dealing with schedule 1, page 4, there is a footnote there that indicates "Peak Shaving" by the Portland Company. Do you anticipate that there will be peak shaving done through the manufactured gas by other companies?

A Yes, I think there will be by all of them. They did not consider us very much in their original estimate here in June of 1950.

Q Yes?

A But nobody there considered the matter. I think practically all the companies, including the B.C. Electric, who now have no equipment for peak shaving, will install peak-shaving equipment, and Mr. Grauer's testimony indicated that.

Q Yes. To that extent there will be some reduction in revenue, then?

A Well, there is a reduction in revenue as far as the price per thousand cubic feet is concerned, but it does add to the capacity of the line when you have peak shaving, because you do not have to hold so much on the line open, so much of the line open, and the balance, having regard to the price

at demand commodity rates, is supposed to make a balance, so that it is almost immaterial to the pipe line company whether or not they have a low or high load factor.

Q Would it be necessary to increase your demand charges in order to compensate for that loss of revenue?

A No, you would just have more capacity to sell gas. You could then have possibly interruptible gas, but I do not think we would be selling a great deal of interruptible gas, certainly during the first few years.

Q Where would the additional gas be sold?

A Which do you mean?

Q That is available?

A There are a great many markets that are not touched in this.

Q Your figures indicate a rate of return calculated at 6.5%?

A Approximately.

Q Yes, and is the company satisfied with that rate of return?

A Well, it has to be. That is all we can get, if we can get that much.

Q Now, going to page 6, just one item there.

A Yes?

Q Schedule 3.

A Yes.

Q There has not been any provision included there in your estimate of general expense for any pensions or employees' welfare fund?

A Yes, they are taken care of, after adding it together there was 15% added for the employees' benefit.

Q Where is that included?

A That is in this item here of, in our case where we have been

figuring on salaries we add 15% to the total to make it up.

Q In the salaries and wages item?

A Yes, in the salaries and wages item.

Q With regard to that matter of direct industrial sales in the United States, Mr. Dixon, would that not be in conflict with the provisions of section 33 of your agreement with the Seattle Gas Company, and the like agreement with the Portland Company?

A No. We could only sell where there is no distributing area, no distributing company, no market area. We can then sell, like a cement plant, outside of the city, or a plant such as the Hanford plant.

Q If a plant, a large plant, were in a franchise area, then you would not be permitted to sell directly to it?

A No. By agreement, we would not be permitted to.

Q Now, in your general statement at the end of your direct evidence, Mr. Dixon, you stated that your project provided for the export of a limited amount of gas?

A That is correct. That is what we have applied for, 80 billion per year.

(Go to Page 2035.)

Q I have in mind Exhibit 2 to the Gulf contract, Exhibit 1, which, in dealing with prices, seems to contemplate export up to 125 billion cubic feet a day.

A Yes. This was a case of bargaining and they believed, and so do we, that there will be vast quantities of gas discovered and there will be a superabundance and that gas will be seeking a market, and if so, we would then come to the Board and ask for authority to take out more gas, and that would be entirely a new application to be decided on its merits as of that time. They were just trying to forestall the future.

Q They said "a day" there. It works out at 342 million a day average, doesn't it?

A Yes.

Q And it was obviously in the minds of both parties to this contract that there might well be export up to that amount?

A Well, this was a matter of bargaining and that was part of the divisions that we had in the contract, taking into consideration the possibility that there might be in the future an increase in the amount of gas exported.

Q You would say, then, it was in the mind of the Canadian Gulf Oil Company that there might be export in that range?

A I would say there is a market there for that much and more, and I should say it was in both our minds.

Q Can you tell me if the Canadian Gulf Oil Company has any interest direct or indirect in the Northwest Natural Gas Company?

A They have no interest whatever.

Q Has the parent of the Canadian Gulf Oil got any interest?

A None whatever.

Q Or any of its affiliates?

A None whatever.

Q With regard to the dating of the contract, it is stated that it is executed as of the day and year written. That is the usual pattern. Would you mind telling me on what date it actually was executed, Mr. Dixon?

A Well, that is a little hard because I signed a rough copy on the 2nd and there were then some slight revisions made and on the 3rd, I think it was the 3rd the final copy was signed, so it is somewhere between the 2nd and the 3rd or maybe it was the 3rd and the 4th. It is between a Friday and a Saturday, anyway, that the contract was signed twice.

Q The Canadian Gulf Oil representative signed after you did?

A Yes. I do not know, I was not there when the final contract was signed.

Q Did your signature appear there first on the one you signed?

A It was just like the one here when I was signing as president of the company. As a matter of fact, I never waited to see the Gulf sign it, I was on my way here.

Q What about the two distributors' contracts, can you tell me on what dates they were actually signed?

A That is a little difficult because they signed it -- they telephoned me they had signed it and were sending it to me and I was signing a copy and sending it to them.

Q Was it after the 3rd?

A Oh, yes, it was all after. They were signed after the Gulf. I think there is a date. They were signed afterwards although they were all dated the same, but they were agreed

to at the same time.

CROSS-EXAMINATION BY MR. MILVAIN:

Q If I might ask you a few questions, Mr. Dixon. The first thing that comes to my mind, I am looking at Exhibit 61, which is the contract between yourself and the Canadian Gulf, and in paragraph 9 on page 5 it speaks of the quality of the gas which is to be delivered containing not more than 1 grain of hydrogen and so on, as set out in the contract, and then at page 1 of Exhibit 66 you say in your text:

"The company has contracted to purchase gas cleaned and dehydrated at a pressure of 750 - - "

and so on. I am wondering, Mr. Dixon, does your contract contemplate the removal of a substance known as ethane?

A No. I think as long as they keep the amount of Btu.'s above 950 I think they would have the right to do that, but I am not certain whether that would be within the range of liquid hydrocarbons or not. I do not believe it would but I am not certain of that.

Q These other substances you spoke of in your evidence this morning, the butane and propane, that would be removed. Do you contemplate them being removed and processed by some-one other than yourself?

A Oh, yes.

Q But so far as the substance ethane is concerned, you do not know whether that goes to you or is processed by somebody else?

A It would almost certainly go into the line, that is, only very rarely it is being used in certain places. I suppose

99 per cent of ethane that is along with the methane is used as part of the natural gas.

Q Well, is it a substance that can be removed, ethane and methane?

A It can be removed, yes. Anything can be removed.

Q And is it an important by-product?

A Sometimes it is, generally not.

Q Do you know whether in the fields that are involved in your proposal, that is, chiefly Pincher Creek and Many Islands and the fields that you mentioned, is the ethane an important element in the gas?

A I do not think it is, but I would have to look it up. I do not think it is.

Q In any event, the position that you take now is that under the contract, Exhibit 61, ethane would go into your system?

A That is my belief.

Q And if it can be used separately it is you who would use it?

A Well, we would use it in the sense that we would sell it along with the gas. It is just a part of the gas, a very small part.

Q Now, I would like also for you to consider again for a moment, Mr. Dixon, Schedule 1 in Exhibit 66. Mr. Martland was speaking to you about it a moment ago. And if you consider the companies as being the first column, the second column deals with the annual requirements in Mcf.'s, that is correct, is it?

A That is the quantities transferred, too.

Q Yes. Now, when you deal with the items under United States-Washington, the last item you have there is direct industrial

9,500,000. Does that include the Handford plant?

A Yes, sir.

Q And from the map that appears at the back of Exhibit 1, I believe it is the same as Exhibit 29?

A Yes.

Q It would appear that the Handford plant would take 24,000 Mcf. per day. Am I correct in that?

A I believe that is what we were using.

Q 24,000 Mcf.?

A That is the size of the line that would be required for what we thought the load would be there.

Q And that figure on the map, 24,000 Mcf. means 24,000 Mcf. per day?

A Yes.

Q So if that is completed to an annual basis, if my arithmetic is right, you would multiply 24,000 by 365 and get 8,864,000?

A Yes.

Q And if you have got an additional 1 million in the Spokane plant that deals with aluminum, you would have a total of 9,760,000 rather than 9,500,000?

A Yes.

Q Now, if, perchance, you did not succeed in getting the Handford load, that figure of 9,500,000 would be immediately reduced to the 1,000,000 that is involved in Spokane, is that right?

A No. It would be in the sense that we were not getting the Handford load but we would construct a line to Kellogg and other points and could pick up that in direct industrial without much trouble.

Q What I am getting at, Mr. Dixon, everything else remaining as is, if you did not get the Handford plant it would reduce that 9,500,000 by the 8,760,000 that is involved in that figure as going to Handford?

A And simultaneously it would reduce the cost of construction by the Handford lateral and that would be available to go to other places.

Q You would have to go and look for other markets?

A Yes.

Q But if that large amount, that is, a large proportion of that 9,500,000 were taken out, it would vary your other calculations in Schedule 1?

A The same would be true of any change.

Q I say, would it change your average price per Mcf.?

A It would raise it.

Q It would raise the average price per Mcf.?

A I mean, just on those calculations it would raise the average but would not raise it to the people, obviously.

Q If, Mr. Dixon, you did not sell gas to the Handford plant and you did not succeed in getting other customers, and that figure, 9,500,000 was only 1, your average price would be something more than 30.81 cents?

A That is true.

Q Now, I suppose in connection with the Handford plant, what discussions you would have would be with whatever is the relevant United States purchasing agent over there?

A I can not discuss anything of what happened inside of the Handford plant. You are under obligation as soon as you pass those portals to say nothing about it at any time

over all that happened.

Q Your discussions would be with whatever is the proper purchasing agent. What do you call it, A.E.C. or E.A.C., or something like that?

A E.A.C., I think.

Q Is that with whom you would have your conversations?

A I can not say.

Q You can not tell us whether or not it was that conbimation, or the Department involving that combination of letters with whom you had your discussions?

A I can say I discussed it in Washington as well as Handford.

Q But you can not tell us what department it was in Washington you discussed it with?

A No.

Q But you do say that you have no firm contract with them?

A We have no firm contract with them.

Q You have nothing more than what might be your understanding of a conversation or a number of conversations?

A That is correct.

Q Now, you say you have been to the Handford plant?

A Yes.

Q On many occasions?

A Several occasions.

Q And how recently was the last time you were there?

A Almost eight months ago, I think it was, or maybe longer.

Q And would that be the most recent of your conversations?

A Yes. That is in conversations, yes. We have had communications at other times.

Q Have you had communications with Washington or Handford?

A I am speaking of myself. Representatives of the company have been there this summer.

Q What would be the latest communication that any representative of your company had with either Handford or Washington?

A I can not say the exact date, it is fairly recent.

Q What do you mean by that, two or three months ago?

A August, 1951.

Q Now, as I understand it, Mr. Dixon, your application for a permit in these proceedings is to export a maximum of 220 million Mcf. per day?

A No, sir.

Q Well, what is it?

A 80 billion per year.

Q 80 billion per year. Well, I think that works out roughly to about the same thing, doesn't it?

A We were not specifying any amount per day.

Q Because I am looking here at your application, it may have been amended, but the last page, page 11, -- well, perhaps I should read the paragraph number 16, which starts at page 10:

> "Applicants, as the holders of contracts to purchase natural gas in the Province of Alberta, respectfully subject themselves to all of the provisions of the Gas Resources Preservation Act and respectfully pray that a permit may be issued to them to export or cause to be exported as outlined above a maximun of 220 million cubic feet per day of natural gas for 30 years."

MR. NOLAN: Mr. Chairman, you will recall that there was an amendment to that application and I will provide my friend with an amended copy, where the figure of 200-something million per day is changed to 80 billion per year.

MR. C.E. SMITH: Exhibit 32, I think, as a matter of fact.

MR. NOLAN: Yes. That was done in June of 1950, and it is to be found in Exhibit 32.

Q MR. MILVAIN: Well, then, I understand that is the case now, that your application has been amended. Now, in seeking a firm export of 80 billion per year, you have taken into consideration all reserves in the various fields in which you seek to export?

A Yes, sir.

Q Now, then, will you tell me what reserves you consider there to be in the Pincher Creek field?

A About roughly a trillion and a half, say.

Q One and a half trillion. And in Many Islands?

A The amount testified to by Mr. Slipper of the Britalta was 462 billion.

Q 462 billion?

A Yes, sir.

Q And the Princess?

A Princess, which includes the fields in the immediate vicinity of Patricia -- the nomenclature of the fields there is not well fixed, but in the general Princess area that is available to the contract is 338 billion.

Q 338 billion, and in Dunmore?

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A Dunmore, that has not been testified to, I do not believe, but it is estimated, that is, by us, the California Standard estimates that at 60 billion.

Q The Standard estimate it at 60 billion?

A Yes.

Q Now, then, you, of course, have seen the estimates that were made by Dr. Nauss with respect of those same fields?

A Yes.

Q And I take it from the figures that you have just given me that you disagree with those that were given by Dr. Nauss?

A I do not believe he testified in regard to Many Islands, he did on Princess.

Q Well, if my figures are correct, I think Dr. Nauss had Many Islands as 87.2.

A That was testimony before the development. Many Islands was developed after that. I think Dr. Nauss would now change his estimates considerably on that.

Q Now, you say that the field has been increased by activities that took place subsequently to Dr. Nauss giving evidence?

A I think that is correct.

Q Can you give us an estimate as to what extent it would be increased since Dr. Nauss gave evidence?

A What is the date of Dr. Nauss's testimony?

Q Well, I am not just sure.

A He testified several times.

Q I think it was in September, just past.

A Last September?

Q Yes, September of last year.

A Well, then, the development had already taken place, but

he testified the year before and the development of Many Islands had not taken place at that time. But in any case, Mr. Slipper disagrees with him markedly.

Q My impression of what Dr. Nauss's evidence was, and I admit I am subject, perhaps, to correction, but I think he gave it on the last instance, the Many Islands field, at 87.2.

A How much?

Q 87.2.

A I do not remember.

Q What is that?

A I say, I do not remember what his testimony was.

Q In any event, the situation is that you by and large disagree with Dr. Nauss's estimate?

A If that was his testimony, I think practically all the other witnesses disagreed.

Q Now, according to the figures that I have, I would total Dr. Nauss's at 1613.9 in the Pincher Creek, Many Islands, Princess-Patricia and Dunmore fields.

A That is 1 trillion 600 thousand?

A That is right, 613.9, which on the basis of removing 80 per year would give you a 20-year supply?

A Yes, if you accept Dr. Nauss's figures.

Q So that if those figures of Dr. Nauss's were accepted as against your own you would not have a supply for the 25-year period?

A That would be true in these fields, assuming we did not go out to other fields, but I am not saying that Dr. Nauss is correct.

Q I am saying that if we assume for a moment that he is,

then you have not a sufficient available supply of gas to meet your proposed program?

A Yes, we have, because our bond issue will be for 20 years, and we would. If we had an absolutely assured supply for 20 years that would be enough to finance the project on.

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Q Would you be prepared to go ahead with your scheme on the basis of it being a 20-year plan ratherthan a 25-year plan?

A No, not that way, but I say we have a 25-year contract and are asking for a 25-year permit to cover the gas, but the bond issue would be based on a 20-year period.

Q Wouldn't you have to have at least 20 years' supply in order to finance this program?

A We certainly would.

Q So that if you were seeking to finance it on the bare 20-year minimum, it would not look like a very feasible proposition, would it?

A Oh, I think it would, under the circumstances here.

Q Oh?

A On the assumption that you could go out and get some more gas.

Q Quite?

A Yes.

Q But you would have to assume that the Board would allow you to do that?

A You would have to assume that the Board would allow you to do that.

Q Yes. So that unless you could assume two things, one thing would be that further gas reserves were discovered, and the other would be that a permit were granted to you allowing you to go to those reserves?

A No, not the first, because there are sufficient gas reserves discovered right now.

Q Well, now. . .

A There would be enough. There is considerable in Sunnynook

where we once thought of going.

Q But I am asking you to assume with me for a moment, if we accept Dr. Nauss's findings, as I have stated, and that you, therefore, only have a 20-year period in those fields, then in order to make your scheme feasible you must assume two things, (1) that further reserves are eiscovered, and (2) that you are given a permit allowing you access to those?

A Well, we do not accept Dr. Nauss's estimate.

Q But I say if you do, you will end up with the result that I have just stated?

A Well. . .

MR. C. E. SMITH: Could somebody give us a reference to Dr. Nauss's evidence here? Have you got it, Mr. Milvain?

MR.MILVAIN: No, I haven't it in detail. I just have a short tabulation of it. The tabulation that I have states that Dr. Nauss, and this is in, I think it was Exhibit 4. Now, I am not sure. But he gave the Pincher Creek field as being 1,268, Many Islands 87.2, Princess-Patricia 238.4, and Dunmore 20.3, for a total of 1613.9, which, if they can operate at 80 billion a year, would give you a 20-year supply.

Q So that to come back to the question I put a moment ago, Mr. Dixon, I was assuming that Dr. Nauss's estimates are correct, as I have just read them, assuming that, then the only gas that you have available in those fields would be such an amount of gas as would allow you to carry on your scheme for 20 years, that is correct, isn't it?

A Making those assumptions, that is correct.

Q Yes. And that if that were the end, you could not see any further prospect, the scheme may not then be feasible?

A No, not necessarily.

Q It would not be a very good one?

A Not a very good one.

Q And that in order to get such a scheme going, and consider it feasible, you would then have to assume that you would find further reserves and that you would be permitted access to those reserves.

A Would you eliminate the first and take the second? You do not have to find any more reserves, but you have to be permitted to go to additional reserves.

Q Surely you would either have to find reserves and get permission to go to them, or you would have to get permission to go to reserves that have been found?

A You would have to get permission to go to reserves that have been found. You have to get permission also, if you find them, to go to them.

Q Oh, quite. Those two things could happen. Now, if, again, we make another assumption, Mr. Dixon, that the statement of reserves as indicated in this Board's interim report were accepted, and as, I think, in there they showed Pincher Creek 1170 billion, and I think the Princess-Patricia is 101 billion, then you are down to something in the neighbourhood of a 17-year supply?

A You have not put in Many Islands.

Q No. Well, we will take the same figures that were used before.

A Whose?

Q Dr. Nauss's figures.

MR. C. E. SMITH: You take Slipper, and he will take Nauss.

Q MR.MILVAIN: We will take Dr. Nauss's figures. Then we will be reduced still further below the 20 years?

A Yes, making all those assumptions, which I do not accept.

Q Now, over what period do you propose to amortize your line?

A 20-year.

Q A 20-year period?

A Yes.

Q And then have you any plans beyond that 20-year period?

A Well, I may not be around then at that moment, but I would like to be. I have lots of plans before the end of the 20-year period.

Q What you would do if your Company would still be in business at that time?

A Yes.

Q But if it is to be in operation beyond the 20-year period, you either must have in mind finding further supplies of gas to supply the system at the end of that time?

A That is true of every line ever built.

Q Now, Mr.Dixon. . . .

DR. GOVIER: Mr. Milvain, excuse me.

Q Mr. Dixon, referring to page 7 of Schedule 4, you show your depreciation at $3\frac{1}{2}\%$. Is that consistent with your statement that you would depreciate the line over 20 years?

A Yes, because you are depreciating all the time, and your $3\frac{1}{2}\%$ is paying off the bonds by the end of the 20 years, if there is nothing more going on.

Q In other words, you would depreciate the bonded capital in 20 years?

A You would have a sinking fund, I would say, of $3\frac{1}{2}\%$ for depreciation. Now, that would only go to pay 75%.

Q In 20 years?

A Well, that is the way that the bankers figure it, and that it will work out all right. I would rather have a person more familiar with banking to testify.

Q I just wanted your idea?

A That was the general principle.

Q MR.MILVAIN: I would like to consider for a moment with you, Mr. Dixon, your Exhibit 65?

A Yes, sir.

Q And in the second paragraph on the first page, the second sentence reads this way,-

> "Consequently, Northwest Natural Gas Company initially plans to take natural gas from the most accessible fields."

Now, by that do you mean that in future you expect to try to utilize other supplies of gas?

A Why, certainly, if we were permitted to.

Q Yes. You would have to locate where the gas is and then get a permit to get access to it?

A Yes.

Q And have you given consideration as to where you might go in that regard at this time?

A Not very accurate consideration because it is something in the future, and all we do know is that the conditions will not be the same in the future as they are at present,

and I think the events will have to determine what will be done in the future.

Q Have you given consideration to the possibility that in order to reach this additional reserve, of these additional reserves, you might have to run a pipe line up into Northern Alberta, or perhaps even up into Northern British Columbia?

A Why, that is conceivable, and much more than conceivable. It is something that could be thought of and considered. I spoke this morning of a pipe line running along through the Foothills, if the discoveries there are what we all hope for, and it would need more than one big line going in that direction to take the gas.

Q Now, when you consider this use of 80 billion Mcf per year, do I take it from your exhibits that were filed today and yesterday, and the evidence that was given, that you anticipate reaching the point where the full 80 billion per year in use will come within the next three or four years?

A At the end of the third year, let us say, that is what we have now. The distributors think they can put the load on much faster now than they did when they were testifying here a year or so ago.

Q So that at the end of the third year you will then have reached the point where your system is then supplying to distributors the total of 80 billion per year?

A Either distributors or direct industrial.

Q That is right. And at that time do you know what percentage of saturation, we will say, of domestic users, you will have in the various areas served?

A No, I could not answer that offhand. It will be very

different inddifferent parts. I think in Portland there will be almost a complete saturation in three years; in Seattle I think in three years there will still be considerable, even parts of the city that will not have yet received gas. Seattle is not, the system there does not cover the entire area. In Vancouver I think it will be fairly well saturated by then, but, of course, after you call a thing saturated, history has been that it keeps on increasing anyway.

Q In other words, the time you get to the end of your third-yea period, the saturation point of service will not have been reached?

A Oh, my, no.

Q No. So that there will be still a wide field to expand into?

A Yes, sir.

Q Now, is it your plan that the operations of your system will go up on a rising curve, shall we say, for a period of three years, and then level out for another 20?

A That is not what we hope, but we will have to come back and ask for more gas before we can say.

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Q So that in order that this system that you propose to install will function efficiently you would have to visualize an expansion beyond the three-year period?

A No, we are basing all our calculations on the limits of the application.

Q Quite. However, I think you will agree with me, Mr. Dixon, as an engineer of considerable experience, that if a pipe line of this dimension were constructed and planned on such a basis that it would run on this rising curve for a period of three years and then level out, it would not be an efficient one, would it?

A Yes, it would.

Q It would not be a very good idea?

A Yes, it would be an excellent idea just the same. It would not be as good as if it could expand but it would be still an operation that could make a profit and pay its debts.

Q But would it be a project that would be giving efficient service to the communities that it touched?

A Well, in the same sense as practically all of the natural gas companies give efficient service, none of them have enough gas to satisfy all the demands of everybody, and it would be as efficient as most gas companies at the end of a long line.

Q Well, is it the teaching of experience that gas companies or, shall we say transmission companies, of this magnitude would come to the end of their expansion programme at the end of 20 years?

A No, by no means.

Q It would not be considered an efficient and economic project

if that were true?

A That is not necessarily true.

Q Pardon?

A I say that is not necessarily true.

Q Would it be considered a feasible prospect?

A Yes, perfectly feasible.

Q Would it be a prospect that some business man would go into?

A Absolutely.

Q So that one would then envisage a situation somewhat like this, a pipe line company, a pipe line transmission company, in making contracts with its distributors would, in effect, have to put a clause in the contract with the distributors that you could expand until you got the number of customers that you have at the end of three years and then you have got to quit because they cannot give you any more gas?

A No, not quite. The contract we have with the distributors set a limit to the amount of gas that we have to supply. I mean, that has been thought of.

Q Oh, quite. But I am saying, Mr. Dixon, do you think it would be feasible to make contracts with distributors in which their field of development was going to be seriously curtailed?

A Not only practical but has been done in these contracts.

Q But curtailed to the point that they can expand for a period of three years and no further?

A A period of five years and no further,

Q Well, if you reached a point where you reached the maximum of your 80 billion at the end of three years, they cannot expand beyond that?

A No.

Q Because you could not supply them with the gas that they needed at this time?

A Well, they would be getting all the gas that had been contracted for.

Q Quite. So that if you have a scheme that is going to reach this maximum of 80 billion per year, at the end of three years, then your distributing companies are not going to be able to expand beyond the point that they reached at that time, unless you get more gas?

A That is true.

Q So that to take the situation as you told me a moment ago, you would have reached the point close to saturation in Portland, you would reach a point in Seattle where a large part of the city has not got gas service at all, that the distributors in that area would then be limited?

A No.

Q Where they could not expand any further?

A I think I would like to explain a little bit here.

Q Yes?

A Take the City of Portland, they expect to sell very considerable amounts of industrial gas, sell it on an interruptible basis. Now, at the prices we are offering them and the present price of fuel oil, they can make large sales of industrial gas almost immediately. They tell me that if the price was a little higher they could not make those sales at the present price of fuel oil. Now, this is a thing that Mr. Grauer was questioned on yesterday. In regard to the market, the market in its size is dependent upon the price

of gas, as given in the testimony especially of Mr. Gellert and the representatives of Portland, and also those of Vancouver, and they testified that as of that time when fuel oil was selling at $1.55 a barrel, ship-load lots, that they had to have a price of 30 cents in order to get the market that was indicated. Now, the price of fuel oil is in the neighbourhood of $2.00, and at the price that we have negotiated they believe they can cover the fuel oil market in the Coastal region. But if the price should go up, say by 3 or 4 cents, it would seriously curtail their industrial market. Now, they will be able to take a very large amount of this industrial gas. As the domestic market increases, they will decrease the amount of industrial gas that is sold and increase the domestic. So that it will not be, as far as the distributing companies are concerned, with a fixed limit to their amount of gas that they can get, they still will be able to expand the domestic part by cutting back into the cheaper grade competition of fuel oil. Now, that would not be true if the price, according to the testimony of the distributors, or if this price was even slightly higher, that would not be true, they could not get this industrial load, and the whole thing, as they testified, would be thrown out of kilter.

Q And they would be put in the position, then, that they could not possibly make firm contracts?

A They could not make interruptible then, the price would be too high.

Q In other words, the whole of your industrial customers in those areas would have to be put on the lowest possible plane

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of priority?

A Yes. They will be expanding their domestic use in spite of the fact that they are shut down on the total volume they are to take.

Q And that would happen in an area such as Portland?

A Especially in Portland.

Q Where they are a seaboard and fuel oil might come in on the barge?

A Vancouver, it would be a very effective way.

Q All those areas on the seaboard?

A Seattle has not the industrial demand that the other towns have.

Q And the difficulty, I take it, there is that fuel oil lands in at the end of a sea route at bargain counter prices?

A Well, they do not think it is bargain counter.

Q It is the sort of thing that looks like a bargain counter when you have to compete with it at the end of a pipe line?

A Yes.

MR. McDONALD: If I might just refer to that question that Mr. Dixon is going to answer with regard to exhibit 29. For purposes of illustration I think if he were to stay strictly with the volume that he uses in that exhibit as it is now framed and let us have his theory as outlined in that exhibit as it is now, that would serve our purposes.

(Hearing adjourned until 9.30 a.m. November 21st, 1951.)

[illegible]

- [illegible] -

Q. Percentage?

A. Tuna. They said to expanding their domestic use in spite of the fact that they are only done on the total volume they are to take.

Q. And that would happen in an area such as Portland?

A. Especially in Portland.

Q. Where they are a [illegible] and feel oil might come in on the budget?

A. [illegible], it would have more effective sale.

Q. All those areas on the continent?

A. Besides the not the [illegible] that the other ones here.

Q. And the difficulty I see it, where is that real oil lands [illegible] of a [illegible] period?

A. Well, they do not think [illegible].

Q. Is it the sort of thing [illegible] where you have to compare with [illegible].

A. Yes.

MR. McDONALD: [illegible] I might just refer to that question that Mrs. [illegible] [illegible] [illegible] were [illegible] [illegible] [illegible] [illegible] purposes.

(Whereupon adjournment [illegible])

[illegible]

The Province of Alberta

PETROLEUM AND NATURAL GAS CONSERVATION BOARD

Application for Permission to Remove or cause to be removed Natural Gas from the Province of Alberta, under the Provisions of the Gas Resources Preservation Act by Western Pipe Lines.

I. N. McKinnon Esq., Chairman

D. P. Goodall Esq.

Dr. G. W. Govier

Session:

Volume__________